

Duct-Free Systems Cooling Only and Heat Pump Units Low Ambient Temperature Controller Accessory

Cancels: IIK 538-09-1
IIK 538-09-7

IIK 538-09-8
4/1/05

Installation Instructions

Part Number 53DS-900---060

NOTE: Read and become familiar with these instructions before beginning installation.

SAFETY CONSIDERATIONS

Installing and servicing air-conditioning equipment can be hazardous due to system pressures and electrical components. Only trained and qualified personnel should install or service air-conditioning equipment. When working on air-conditioning equipment, observe the precautions provided in literature, tags, and labels attached to the unit.

⚠ WARNING

Electrical shock can cause personal injury or death. Before beginning any modification or installation of this kit, be sure the main electrical disconnect is in the off position. Ensure power is disconnected to the fan coil unit. On some systems both the fan coil and the outdoor unit may be on the same disconnect. Tag the disconnect switch with a suitable warning label. There may be more than one disconnect.

GENERAL

IMPORTANT: Heat pump models require an isolation relay (part numbers HN61KK066 for a 24-v coil, HN61KK912 for a 120-v coil, HN61KK913 for a 240-v coil) to prevent fan cycling in heat pump mode. The low ambient temperature controller must be installed in conjunction with the accessory wind baffle. An accessory winter start control (part number KAAWS0101AAA) is recommended (cooling only 018-060 units) when low outdoor temperatures may be encountered or when nuisance tripping of the low-pressure switch (factory installed) may be encountered.

The winter-start control package consists of a time-delay that must be wired across the low-pressure switch. The time-delay relay will bypass the low-pressure switch for 3 minutes on start-up before the low-pressure switch becomes part of the control circuit.

A crankcase heater is also recommended when using low ambient temperature control.

These instructions cover the installation of low ambient temperature controller accessory kit on the duct-free cooling and heat pump condensing units.

The low ambient temperature head pressure controller (HPC) is a fan control device activated by a high cycle rate pressure switch. It is specifically designed for use with duct-free systems, cooling only and heat pump units. The low

ambient temperature controller is designed to maintain a condensing pressure of 200 to 225 psig by cycling the outdoor-fan motor. No field adjustments or calibrations are required.

All of the components necessary for installing the low ambient temperature controller are included in the package. This kit consists of a pressure switch and installation instructions. When unpacking the accessory, carefully inspect for shipping damage. If damage is evident, return for replacement.

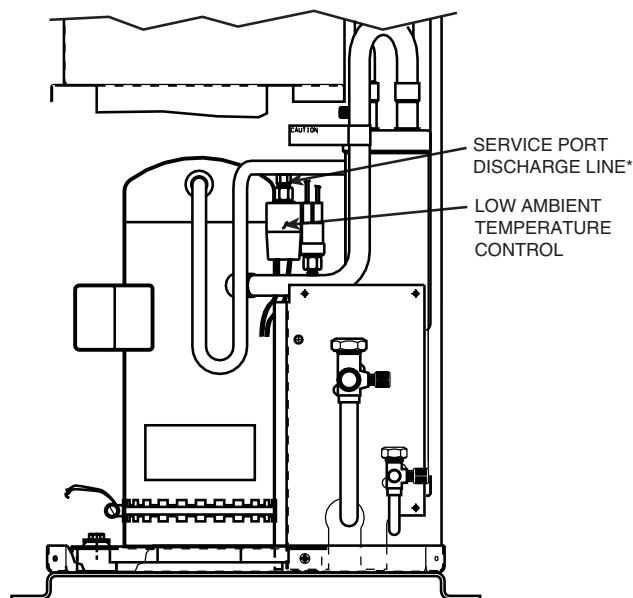
INSTALLATION

Step 1 — Mount Pressure Switch

1. Place 3 drops of compressor oil in the pressure switch for lubrication.
2. Mount the pressure switch as shown in Fig. 1-3.
3. Coil up the excess wire and secure next to the pressure switch.

Step 2 — Connect Power Wiring — All wiring must comply with local codes and National Electrical Code (NEC) requirements. See Fig. 4 for accessory wiring.

NOTE: An adapter tube is required for the 38CG024 unit.



*For 38BN units the service port is on the liquid line.

Fig. 1 — Low Ambient Temperature Control Location (38HDC,HDL,QR,SB,SC,CG, 38CS030, 38BK018-024, 38BN, 538A,B,J)

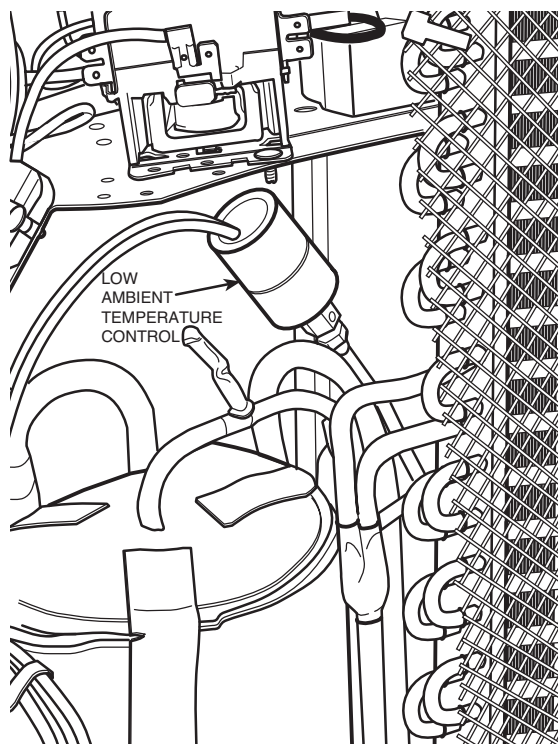


**Fig. 2 — Low Ambient Temperature Control Location
(38AN,BK009-012, 538C,D)**

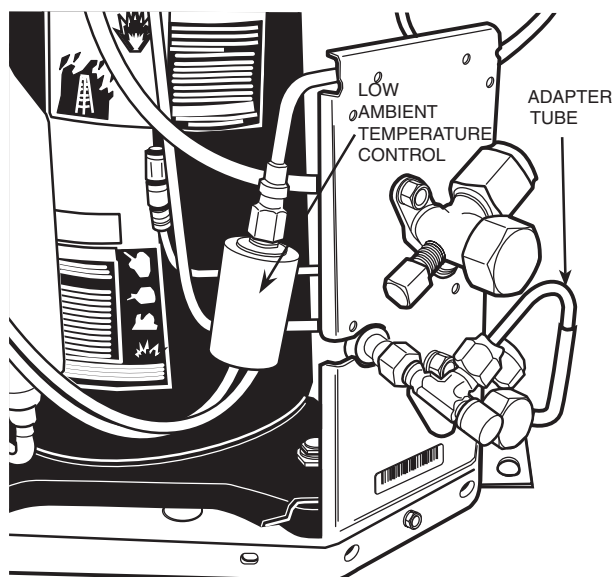


Fig. 3 — 38CG,CS018 and 024 Units with Adapter Tube

COOLING ONLY MODELS			
Model No.	Wire Color	Model No.	Wire Color
38AN009	White	38HDC018-060	Black
38AN012	White	38HDL018-060	Black
538A Series	Black	38BNB018-036	White
538J Series	Black	38CG-018-030	White
538C--009	White	38SC-030	White
538C--012	White		

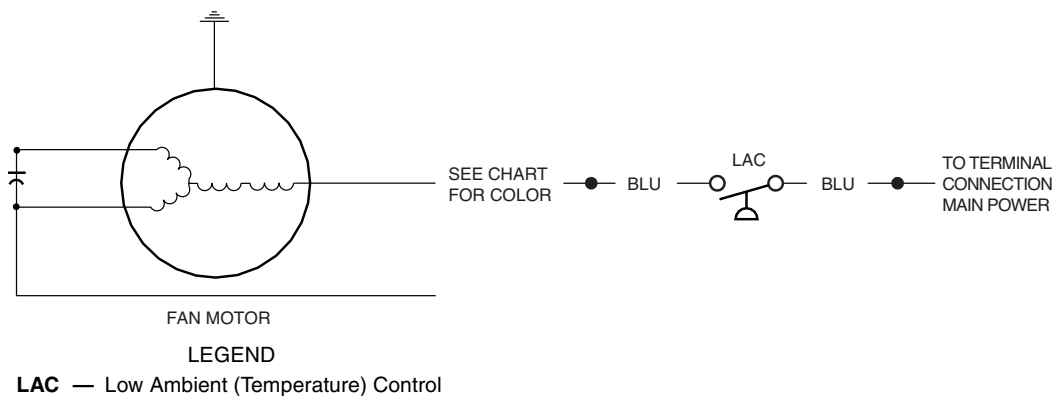
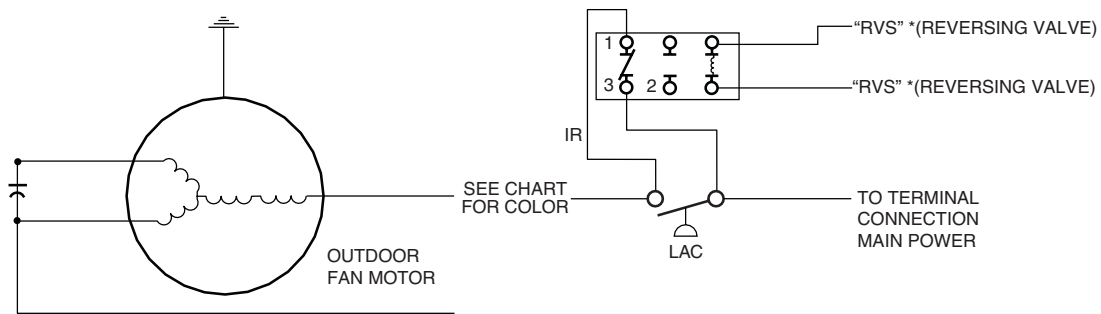
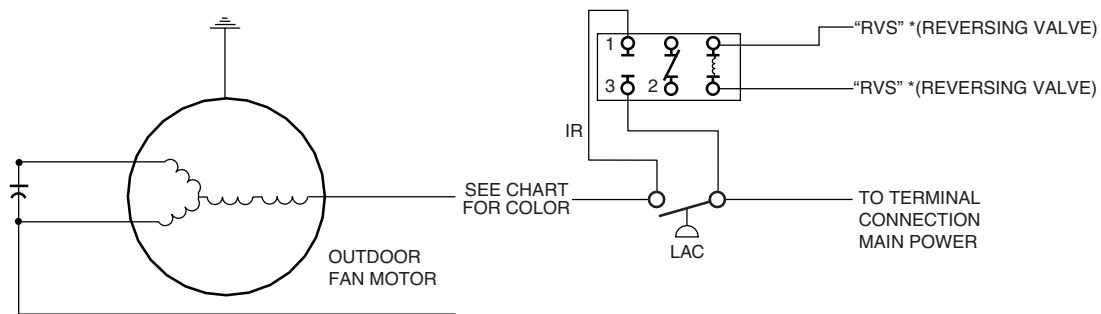


Fig. 4 — Low Ambient Temperature Control Wiring

HEAT PUMP MODELS (Reversing Valve Energized in Cooling)			
Model No.	Wire Color	Model No.	Wire Color
38BK018	Black	38QR018-060	Black
38BK024	Black	538B--018-060	Black
538DAX009	Black		
538DNX024	Black		



HEAT PUMP MODELS (Reversing Valve Energized in Heating)			
Model No.	Wire Color	Model No.	Wire Color
38BK009	Black	38BNE018-036	White
38BK012	Black	38CS-018-030	White
538DAX009	Black	38SB-030	White
538DNX012	Black		



LEGEND
IR — Isolation Relay
LAC — Low Ambient (Temperature) Control

*Isolation relay coil (line voltage) should be wired in parallel with the reversing valve.
 NOTE: Make sure to use the correlating isolation relay (based on coil voltage) with the proper line voltage.

Fig. 4 — Low Ambient Temperature Control Wiring (cont)

CHECK OPERATION

Before starting the system to check operation of low ambient temperature controller, ensure that the power wiring and location of controller assembly are correct.

To check operation of low ambient temperature controller:

1. Turn power on to system.
2. Set thermostat below room temperature.
3. Ensure that there is the standard 3-minute time delay for the microprocessor controlled high wall fan coil systems.
4. Check time delay of installed accessories:
 Under-ceiling (40AQ/619C) or cassette (40QK/619F) fan coils using the duct-free 24-v thermostat delay settings: 2 or 4 minute delay.

The outdoor-fan motor will not operate until the condensing pressure reaches the control set point of 225 psig (± 10 psig). When the set point is reached, the outdoor fan will cycle to maintain the set point condensing pressure.

If the low ambient temperature controller does not operate correctly:

- Ensure that power is being supplied to the system.
- Check condensing pressure: if condensing pressure is below 200 psig the outdoor-fan motor should be off and there should be no voltage across the 2 blue fan power leads coming out of the controller. If condensing pressure is about 225 psig or greater, the outdoor-fan motor should be on and will cycle off at around 200 psig.

